Bldg. 2, Industrial Waste Sewer

CITY OF MOUNTAIN VIEW

Application for Industrial Wastes Discharge Permit

Date February 20, 1974 No. 038-2-79

A. Name of Organization Raytheon Semiconductor
Address 350 Ellis Street, Mountain View, Calif. 94042
Address of Point of Discharge 415 E. Middlefield Rd., Mt. View, Calif. 94042
Individual Responsible for industrial waste — Name Robert W. Thompson — Telephone 968-9211, X418
Signature Robert W Thompson
Attach Map Showing Point of Discharge, Sampling Points, and Waste Treatment Facility.

B. Flow Rate: Average 54,800 gals/day Max. 74,000 Est. gals/day Peak Hourly 200 Est. GPM

C. Submit separate statement:
1. Detailing type of industry and nature of products
2. Listing chemicals used and approximate concentrations
3. Describing waste treatment facilities
4. Giving characteristics of exceptional industrial wastes
5. Concerning radioactive wastes
6. Naming organic solvents discharged and concentration at point of discharge

D. Indicate the point of discharge concentration of the following characteristics and mass emission rates where applicable.

Biochemical oxygen demand (B.O.D.)	2.5 mg/l	Grease and oil, total	0.6 mg/l
Chemical oxygen demand (C.O.D.)	176 mg/l	Hydrogen ion content pH	6
Total Solids, Average	140 mg/l	Fluoride	50 mg/l
Suspended Solids, Average	5.7 mg/l	Chlorine demand	4.9 mg/l
Temperature	ambient °F		

	Max. Conc. Allowable mg/l	Allowable Mass Emission Rate kg/day		Max. Conc. Allowable mg/l	Allowable Mass Emission Rate kg/day
Arsenic	0.1	0.01	Formaldehyde	--	--
Barium	--	--	Lead	--	--
Beryllium	--	--	Manganese	--	--
Boron	1.0	0.1	Mercury	--	--
Chlorine	50.0	5.0	Nickel	1.0	0.1
Cadmium	--	--	Chloroform	--	--
Chromium Hexavalent	--	--	Phenols	1.0	0.1
Chromium Total	--	--	Selenium	--	--
Cobalt	--	--	Silver	--	--
Copper	--	--	Zinc	--	--
Cresols	2.0	0.2			
Cyanides	--	--			

NOT TO BE COMPLETED BY APPLICANT

Permit to Discharge Industrial Wastes in Accordance with This Application Approved Subject to Attached General and Specific Conditions
Allen Shelley, Director of Public Works
Signature Allen Shelley Date April 13, 1976

Permit to Discharge Exceptional Industrial Waste Approved
List Details:

Allen Shelley, Director of Public Works
Signature _____ Date _____

DISTRIBUTION: Original to Industrial Waste File, Copy to Discharger, Copy to Water Quality Control Plant, Copy to Palo Alto, Copy to Sewer Division.

(PW-23)

CITY OF MOUNTAIN VIEW

Industrial Waste Discharge Permit

DATE: April 13, 1976 NO. 038-2-79

NAME OF ORGANIZATION: Raytheon Semiconductor

ADDRESS: 350 Ellis Street

GENERAL CONDITIONS

1. This permit is issued under the ordinances and regulations of the City of Mountain View currently in effect, but all discharges hereunder shall comply with all ordinances and regulations of the City and all other applicable local, state, and federal regulations, whether now in effect or hereafter adopted or amended.

2. Any violation of the terms of this Permit or the ordinances or regulations of the City shall be grounds for revocation.

3. If any proposed revisions in plant operations are expected to cause significant changes in waste water quality or quantity (25 percent or more, or 25,000 gallons per day) from that given in approved Permit information, an application for an amended permit must be submitted for approval detailing the nature of the changes.

4. In accordance with Section 35.32.8 of the City Code, accidental discharges of industrial wastes shall be reported immediately to the Public Works Department, telephone number 967-7211, Ext. 270, during normal office hours, or to the Fire Department, telephone number 968-4415, on holidays or after normal office hours AND to the Palo Alto Regional Water Quality Control Plant, telephone number 329-2598 so that appropriate countermeasures may be taken.

5. This Permit is not transferable without prior written consent of the Director of Public Works. In general, a change of ownership will require a new permit.

6. The issuance of this permit does not constitute a warranty that the design capacity of the sewage collection and treatment system is sufficient to accommodate peak sewage flows from all dischargers who may now or hereafter be connected to the system. Pursuant to Sec. 35.32.1(d) the City reserves the right to impose restrictions on sewage discharges where necessary in the judgment of the City to assure the proper functioning in the sewerage system.

SPECIFIC CONDITIONS

1. This permit is for a period ending on February 20, 1977 but shall be automatically renewed for up to four (4) additional successive one-year periods unless the City shall give written notice of nonrenewal at least thirty (30) days prior to the annual renewal date.

2. This permit applies to industrial waste discharges at the following location(s) only:

   415 E. Middlefield Road

3. Your attention is called to the fact that flow rates shown on the permit application exceed per-acre design flows of the sewers serving the above locations. Restrictions or additional charges may be imposed in accordance with Sec. 35.32.1(d) of the City Code should peak sewage flows from the total upstream acreage approach the capacity of these sewers.

Bldg. 2, Industrial Waste Sewer

Raytheon Company
Semiconductor Division - February 20, 1974

Sewer permit information for industrial sewer at Bldg. 2 (415 E. Middlefield Road, Mt. View, California, 94042).

1. The activity at this location would be called light electronics fabrication, assembly and testing and consists of integrated circuit and transistor fabrication (utilizing epitaxial and diffusion processes), assembly, storage, testing, marking, packing and shipping, along with the corresponding office and engineering functions.

2. The list of chemicals used was made up after reviewing the Materials & Specifications Log (a Raytheon process control document) with the appropriate production people to determine which items are used at this location and is as follows:

Acetic Acid, Glacial
Nitric Acid
Trichloroethylene (Electronic Grade)
Hydrofluoric Acid 49%
Acetone (Electronic Grade)
Sodium Hydroxide
Xylene
Sulfuric Acid
Isopropyl Alcohol, Electronic Grade
Lapping Compound, 12.5 u Al203
Hydrochloric Acid
Liquid Detergent
Ammonium Fluoride (40% solution)
Detergent, Joy
Trichloroethylene
Hydrogen Peroxide 30% solution
Process Water - Point of Use
Mounting Wax
Phosphoric Acid, Ortho 85%
Boron Tri-Bromide 50 Gram Ampules
Methyl Ethyl Ketone (MEK)
Silicon Tetrachloride - Liquid
Coolant Additive (Metacool)

2. continued

Process Water, Delivered
Phosphorous Oxychloride
Diborane (B2H6 in Argon or Hydrogen)
Phosphine (PH3- 10 or 25 ppm in Hydrogen)
Arsine (As H3 - 15 ppm in Hydrogen)
Freon - TF
8:1 Oxide Etch (8 parts NH4F (40%): 1 part HF (49%)
Kodak Thin Film Resist Rinse - liquid
Shipley Photo Resist Developer - liquid
Shipley AZ-119A Photo Resist - liquid
Shipley AZ-119 Photo Resist Thinner - liquid
Nicralloy #20 slugs - 20% Cr - 80% nickel alloy)
Clorothane VG
J-100 Stripper
747 Kodak Micro - Resist
1112 Shipley Remover
911 Stripper
712 D Stripper (Burmar)
Trans-Etch - N; Nitride Etch Solution
Anhydrous Ammonia

3. Waste Treatment Facilities

3.1 No sanitary wastes go into this sewer line as there is a separate sanitary sewer servicing the building. A separate permit is being applied for to account for the sanitary sewer.

3.2 The waste treatment facility consists of a continuous neutralization system and is made up of two underground tanks with stirrers, ph monitoring and control equipment and liquid ammonia for neutralization. This is a completely automatic system and charts the outgoing ph. The tanks, etc., are physically located in a vacant field approximately 135 feet West of the Manufacturing Building.

3.3 Solvents are to be collected and held in storage for hauling away by a licensed hauling contractor.

4. The exceptional industrial wastes at this location are dilute isopropyl alcohol which is infinitely soluble in water, and fluorides of 50 mg/liter from hydro fluoric acid and ammonium fluoride.

5. No radio active wastes at this location.

6. Organic solvents discharged at this location and concentration at point of discharge:

Isopropyl Alcohol

$$\frac{(20 \text{ gal./day})(6.6 \text{ lb/gal.})(453.6 \text{ gm/lb})(1000 \text{ mg/gm})}{(54{,}800 \text{ gal. sewer flow})(3.785 \text{ liters/gal.})} = 289 \text{ mg/liter}$$